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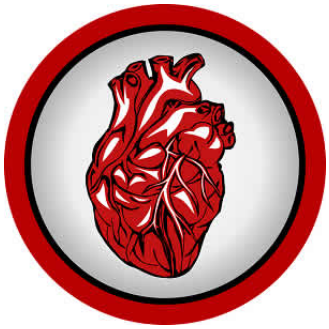
# How effective is multiple arterial coronary artery bypass grafting?



A large, population-based study demonstrates the safety and long-term benefits of multiple arterial grafting (MAG) among patients undergoing coronary artery bypass grafting (CABG). In this study of 20,076 consecutive patients with triple-vessel or left-main disease, MAG was associated with significant reductions in long-term mortality and repeated revascularisation without increased perioperative risks.

Moreover, similar reductions in either mortality or repeated revascularisation rates were observed among all subgroups of patients except for those with severely impaired ejection fraction, according to the study published in JAMA Cardiology.

"Multiple arterial grafting can be safely extended to a broader spectrum of patients to maximise the long-term benefit of coronary artery bypass grafting among patients with multivessel disease," write Aihua Pu, MSc, Cardiac Services BC, Vancouver, British Columbia, Canada, and co-authors.

The study sought to compare the safety and long-term outcomes of MAG versus left internal thoracic artery (LITA) supplemented by saphenous vein grafts (LITA+SVG) among overall and selected subgroups of patients. Of 5,580 participants who underwent MAG, 586 (11%) were women and the mean (SD) age was 60 (8.7) years. Of 14,496 participants who underwent LITA+SVG, 2803 (19%) were women and the mean (SD) age was 68 (8.9) years. The median (interquartile range) follow-up time was 9.1 (5.1-12.6) years and 8.1 (4.5-11.7) years for the groups receiving MAG and LITA+SVG, respectively. The researchers performed propensity-score analyses by weighting and matching and multivariable Cox regression to minimise treatment selection bias.

The results showed that, compared with LITA+SVG, MAG was associated with reduced mortality rates and repeated revascularisation rates in 15-year follow-up, and reduced incidences of myocardial infarction and heart failure in seven-year follow-up. The long-term benefits were coherent by all three statistical methods and persisted among patient subgroups with diabetes, obesity, moderately impaired ejection fraction, chronic obstructive pulmonary disease (COPD), peripheral vascular disease (PVD), or renal disease. In addition, MAG was not associated with increased morbidity or mortality rates at 30 days overall or within patient subgroups.

"Given the complex decision making in optimising surgical strategy, identifying the appropriate candidates for MAG is crucial to maximise its long-term benefits," the authors write. "Diabetes, obesity, COPD, older age, impaired ejection fraction, PVD, and renal disease have been associated with poor prognoses after CABG and low use of MAG."

Although studies have consistently reported a long-term MAG survival benefit for patients with diabetes, findings on repeated revascularisation are conflicting. The current study however demonstrated a consistent long-term survival benefit and reduced need for repeated revascularisation among diabetic patients, Pu and colleagues note. The study results should be interpreted in the context of the inherent limitations of observational studies, add the authors.

Source: JAMA Cardiology
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